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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,775	09/16/2002	Norman Latov	61546-A-PCT-US/JPW/FHB	2322

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EXAMINER
GRUN, JAMES LESLIE

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 06/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/088,775	LATOV et al.
Examiner	**Art Unit**
James L. Grun, Ph.D.	1641

-- Th MAILING DATE of this communication appears on the c ver sheet with the corresp ndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-35 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Technology Center 1600, Group 1640, Art Unit 1641.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-35 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-35, recitations of "such" or "such type" are vague and indefinite as to what is intended as encompassed. It is not clear if previously recited elements are intended or are merely exemplary of the recited "such" elements. Recitations of "the" or "said" are proper for elements having an antecedent basis.

In claim 1 and claims dependent thereupon, "the presence" lacks antecedent basis.

In claim 2 and claims dependent thereupon, "the presence" lacks antecedent basis. In these claims it is not clear how to do a comparison of steps (b) and (c) in step (c), it is believed that steps (a) and (b) were intended.

In claim 7 and claims dependent thereupon, the interrelationships of the components are not clear, for example it is not clear if the samples comprise affixed ganglioside prior to the contacting step. In these claims it is not clear what is being determined if a standard is provided

indicative of the amount of antibody in the subject, it is believed that a standard indicative of sample amount was intended. In these claims, "the amount" lacks antecedent basis.

In claim 8 and claims dependent thereupon, it is not clear what is being determined if a standard is provided indicative of the amount of antibody in the subject, it is believed that a standard indicative of sample amount was intended. In these claims, "the amount" lacks antecedent basis.

In claims 10 and 14, improper Markush language is used to claim the members of the group. The alternatives "selected from...or" or "selected from the group consisting of...and" are acceptable.

In claim 10, it is not clear how a liquid sample can be selected from tissue or lymph nodes as alternatives.

In claim 16, "the source" lacks antecedent basis.

In claims 20, 21, 28, 33, and claims dependent thereupon, "using" is not a valid method step. In these claims, "the presence" lacks antecedent basis.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 10, and 14-19 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Uhlig et al (Autoimmunity 5: 87-99, 1989).

Uhlig et al prepared blue-dyed liposomes (see Fig. 2 legend) having mixtures of glycolipids, including gangliosides (e.g. from extracts of human myelin or bovine brain gangliosides), or selected pure lipids thereon (e.g. pages 91-92) and determined the ability of IgM autoantibodies in samples to agglutinate the liposomes as an indication of antigen-autoantibody binding (pages 93-95). Samples were reacted with a series of microparticle populations having different concentrations of different glycolipids thereon and presence or absence of agglutination was determined.

Claims 1-3, 5, 6, 8-10, 13, 14, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Uemura et al (Biochem J. 219: 865, 1984).

Uemura et al teach that hemagglutination with serial dilutions of sample was known for the detection of autoantibodies which bind gangliosides (see e.g. Table 1).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

(c) Subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 1-3, 5, 6, 8-10, 13, 14, and 17-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uemura et al (Biochem. J. 219:865, 1984) in view of Ravindranaths et al (J. Biol. Chem. 263:2079, 1988).

The teachings of Uemura et al are as set forth above and differ from the invention as instantly disclosed in not teaching coating the solid phase, i.e. the erythrocytes, with purified gangliosides in the assay.

Ravindranaths et al teach coating asialo-erythrocytes with gangliosides for hemagglutination assays (e.g. page 2080, col. 2).

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have used the coating method of Ravindranaths et al with the hemagglutination assay taught in Uemura et al in order to determine the specificity of the autoantibodies of Uemura et al because one of ordinary skill in the art would have been motivated to substitute coated erythrocytes in the assay to obviate the need to stock erythrocytes with different antigen types as used in the method taught in Uemura et al or to obviate the need to

perform thin layer chromatography binding assays to determine antibody specificity. One would have had a reasonable expectation of the success of the known hemagglutination method for the successful detection of antibody specificity.

Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

Claims 1-35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uhlig et al (Autoimmunity 5: 87-99, 1989) in view of Dwyer et al, Uemura et al (Biochem. J. 219:865, 1984), Ravindranaths et al (J. Biol. Chem. 263:2079, 1988), Pestronk (U.S. Pat. No. 5,443,952), and applicant's admissions regarding the prior art.

The teachings of Uhlig et al are as set forth previously and differ from the invention as instantly claimed in not teaching particles other than liposomes for performance of the agglutination assay and in not teaching anti-glycolipid antibodies in peripheral neuropathy patient samples.

Dwyer et al teach coated polystyrene spheres as an alternative to liposomes for agglutination assays using particle surface-exposed gangliosides.

As set forth above, Uemura et al teach that hemagglutination was known for the detection of autoantibodies which bind gangliosides (see e.g. Table 1).

Ravindranaths et al teach coating asialo-erythrocytes with gangliosides for hemagglutination assays (e.g. page 2080, col. 2).

Pestronk and applicant's admissions regarding the prior art teach the diagnosis of peripheral neuropathies, including Guillain-Barré syndrome, by determination of autoantibodies directed towards nervous system glycolipid antigens, gangliosides in particular. Pestronk teaches that GM1, GD1a, GD1b, and GT1b gangliosides are especially abundant in brain and neuronal membranes and that high titers of antibodies to glycolipids, particularly to GM1 ganglioside (Fig. 7), GA1 ganglioside, and sulfatide, are common in patients with various forms of peripheral neuropathy (cols. 7-10). Any immunoassay method known to the art may be used to determine antibody levels, including nephelometry (see e.g. col. 16), a well known form of agglutination assay.

It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have substituted any conventional particle comprising or coated with surface glycolipids, such as those taught by Dwyer et al, Uemura et al, or Ravindranaths et al, for the liposome particles in the agglutination assays of Uhlig et al because Dwyer et al specifically teach the substitution of ganglioside-comprising liposomes with ganglioside-coated polystyrene spheres and one would have had an extremely reasonable expectation that any of the known and conventional particles for agglutination assays, particularly those which were already known to function in agglutination assays involving glycolipid binding in view of the references, would have performed their expected function of presenting a glycolipid binding ligand to binder and providing a visible indication of the binding interaction. It would have been obvious to have provided colored particles for the benefits of increased light contrast taught in Uhlig et al. It

would have been further obvious to have tested samples from patients with peripheral neuropathies with the method of Uhlig et al, as modified, because, as taught by Pestronk and applicant's admitted prior art, high titers of antibodies to glycolipids are common in patients with various forms of peripheral neuropathy and any assay which functions for detection would have been expected to detect the relevant antibodies as taught by Pestronk.

Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

The art made of record and not relied upon is considered pertinent to applicant's disclosure.

Alaedini et al (J. Clin. Lab. Analysis 15:96, 2001) teach the invention essentially as disclosed.

Yi et al also teach ganglioside coated latex particles for agglutination assay.

Vaishnavi et al also teach glycolipid coated latex particles for agglutination assay.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to James L. Grun, Ph.D., Technology Center 1600, Group 1640, Art Unit 1641, whose telephone number is (703) 308-3980. The Examiner can normally be reached on weekdays from 9 a.m. to 5 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Long Le, SPE, can be contacted at (703) 305-3399. The fax phone numbers for official communications to Group 1640 are (703) 305-3014 or (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Christopher L. Chin

CHRISTOPHER L. CHIN
PRIMARY EXAMINER
GROUP ~~1800~~ 1641

James L. Grun, Ph.D.
June 29, 2003